

**CLAIMS**

1. A composition comprising:
  - a first pigment component comprising particulate ground calcium carbonate (GCC) having a particle size distribution (psd) steepness factor ranging from about 30 to about 45; and
    - a second pigment component comprising either particulate precipitated calcium carbonate (PCC) having a psd steepness factor ranging from about 55 to about 75 and a  $d_{50}$  not greater than  $0.5\mu\text{m}$ , or particulate GCC having a psd steepness factor between about 40 and about 55.
- 10 2. A composition according to claim 1, wherein the first and second component particles are present in the particulate pigment in a weight ratio of ranging from about 5:95 to about 95:5 first:second component.
- 15 3. A composition according to claim 1, wherein the first and second component particles are present in the particulate pigment in a weight ratio ranging from about 10:90 to about 90:10 first:second component.
4. A composition according to claim 1, wherein the first and second component particles are present in the particulate pigment in a weight ratio ranging from about 30:70 to about 70:30 first:second component.
5. A composition according to any one of the preceding claims, further 20 comprising a kaolin clay.
6. A composition according to claim 5, wherein said kaolin clay is present with said first and second calcium carbonate pigments in a weight ratio of at least about 10:90 calcium carbonate:kaolin clay.

7. A composition according to claim 5, wherein said kaolin clay is present with said first and second calcium carbonate pigments in a weight ratio of about 70:30 calcium carbonate:kaolin clay.

8. A composition according to any one of the preceding claims,  
5 wherein said composition is a pigment present as a dry particulate mixture.

9. A composition according to any one of claims 1 to 7, wherein said composition is a pigment present as a suspension of said particles in a liquid medium.

10. A composition according to any one of the preceding claims,  
10 wherein said composition is a pigment used on paper and other substrates.

11. A composition according to any one of the preceding claims,  
wherein the second pigment component comprises PCC having a  $d_{50}$  of less than 0.5 $\mu\text{m}$ .

12. A composition according to any one of claims 1 to 10, wherein the  
15 second pigment component comprises PCC having a  $d_{50}$  of less than 0.45 $\mu\text{m}$ .

13. A composition according to any one of claims 1 to 10, wherein the second pigment component comprises PCC having a  $d_{50}$  of less than 0.40 $\mu\text{m}$ .

14. A composition according to any one of claims 1 to 10, wherein the second pigment component comprises PCC having a  $d_{50}$  of less than 0.35 $\mu\text{m}$ .

20 15. A composition according to any one of claims 1 to 10, wherein the second pigment component comprises PCC having a  $d_{50}$  of 0.2 $\mu\text{m}$  – 0.5 $\mu\text{m}$ .

16. A composition according to any one of claims 1 to 10, wherein the second pigment component comprises PCC having a  $d_{50}$  of 0.3 $\mu\text{m}$  – 0.5 $\mu\text{m}$ .

17. A composition according to any one of claims 1 to 10, wherein the second pigment component comprises PCC having a  $d_{50}$  of about 0.4 $\mu\text{m}$ .

18. A composition according to any one of the preceding claims, wherein the composition consists essentially of the first pigment component and 5 the second pigment component; the first pigment component consists essentially of the GCC and the second pigment component consists essentially of the PCC or the GCC.

19. A coating composition comprising an aqueous suspension of a particulate pigment and a binder, wherein the particulate pigment comprises a 10 mixture of:

a first pigment component comprising particulate GCC having a psd steepness factor ranging from about 30 to about 45; and

a second pigment component comprising particulate PCC having a psd steepness factor ranging from about 55 to about 75 and a  $d_{50}$  not greater than 15 0.5 $\mu\text{m}$  or particulate GCC having a psd steepness factor ranging from about 40 to about 55.

20. A coating composition according to claim 19, wherein the pigment is a pigment according to claim 10.

21. A coating composition according to claim 19 or 20, wherein the 20 binder comprises about 4% to about 30% of the solids of the composition on a dry weight basis.

22. A coating composition according to any one of claims 19 to 21, wherein the binder comprises a modified starch.

23. A coating composition according to any one of claims 19 to 21, 25 wherein the binder comprises an unmodified starch.

24. A coating composition according to claim 22 or 23, wherein the binder comprises a component other than starch.

25. A coating composition according to any one of claims 19 to 24, further comprising: one or more cross linkers; one or more water retention aids;

5 one or more viscosity modifiers and/or thickeners; one or more lubricity/calendering aids; one or more dispersants; one or more antifoamers/defoamers; one or more dry or wet pick improvement additives; one or more dry or wet rub improvement and/or abrasion resistance additives; one or more gloss-ink hold-out additives; one or more optical brightening agents (OBA)  
10 and/or fluorescent whitening agents (FWA); one or more dyes; one or more biocides/spoilage control agents; one or more levelling and evening aids; one or more grease and oil resistance additives; one or more water resistance additives; one or more additional pigments; or any combination thereof.

26. A coating composition according to any one of claims 19 to 25, 15 further comprising less than about 10% by weight of other components.

27. A coating composition according to any one of claims 19 to 26, wherein the second pigment component comprises PCC having a  $d_{50}$  of less than 0.5 $\mu\text{m}$ .

28. A coating composition according to any one of claims 19 to 26, 20 wherein the second pigment component comprises PCC having a  $d_{50}$  of less than 0.45 $\mu\text{m}$ .

29. A coating composition according to any one of claims 19 to 26, wherein the second pigment component comprises PCC having a  $d_{50}$  of less than 0.40 $\mu\text{m}$ .

30. A coating composition according to any one of claims 19 to 26,  
wherein the second pigment component comprises PCC having a  $d_{50}$  of less than  
 $0.35\mu\text{m}$ .

31. A coating composition according to any one of claims 19 to 26,  
5 wherein the second pigment component comprises PCC having a  $d_{50}$  of  $0.2\mu\text{m}$  –  
 $0.5\mu\text{m}$ .

32. A coating composition according to any one of claims 19 to 26,  
wherein the second pigment component comprises PCC having a  $d_{50}$  of  $0.3\mu\text{m}$  –  
 $0.5\mu\text{m}$ .

10 33. A coating composition according to any one of claims 19 to 26,  
wherein the second pigment component comprises PCC having a  $d_{50}$  of about  
 $0.4\mu\text{m}$ .

34. A coating composition according to any one of claims 19 to 33,  
wherein the coating composition consists essentially of the aqueous suspension  
15 of the particulate pigment and the binder, and wherein the particulate pigment  
consists essentially of the mixture of the first pigment component and the second  
pigment component and wherein the first pigment component consists essentially  
of the particulate GCC, and the second pigment component consists essentially of  
the particulate PCC or the particulate GCC.

20 35. A method for preparing a coating composition according to any one  
of claims 19 to 34, which comprises mixing at least said particulate pigment, and  
said binder into an aqueous liquid medium for preparation of a suspension of the  
solid components therein.

36. A method for preparing a coated product, which comprises applying to said product a composition according to any one of claims 19 to 34, to coat said product, and calendering said product to form a coating thereon.

37. A method according to claim 36, wherein said product is in the form  
5 of paper, board, card, or paper board.

38. A product coated with a coating comprising a dry residue of the composition as claimed in any one of claims 19 to 34.

39. A product according to claim 38, wherein said product is in the form  
of paper, board, card, or paper board.